ASIA REGION EXPERT PANEL MEETING
POND DYNAMICS/AQUACULTURE COLLABORATIVE RESEARCH SUPPORT PROGRAM

Tuesday, April 23, 2002
Beijing International Convention Center
Beijing, China

The meeting started shortly after 8:30 a.m. The program was followed as arranged prior to the meeting.

MEETING ATTENDEES PRESENT

Expert Panel Members: Remedios Bolivar, Claude Boyd, C. Kwei Linn, Le Thanh Luu, Michael Phillips, Husnah Samhudi, Madhav Shrestha, Albert Tacon, Md. Abdul Wahab
Co-Moderators: Hillary Egna and Jim Diana
Observers: Kevin Fitzsimmons and Le Thanh Hung
Recorder: Yang Yi and Amrit Bart

OPENING COMMENTS (MODERATORS – HILLARY EGNA AND JIM DIANA)

The PD/A CRSP Director, Hillary Egna, opened the meeting by acknowledging the enormous efforts from both Danielle Clair and Gwyn Newcombe to organize this Asia Region Expert Panel Meeting (AREP). Egna explained that since the inception of the CRSP, the program has attempted to deal with issues such as sustainability of aquaculture, global and regional constraints in aquaculture development and its impact on the environment, and profitability of small farms from aquaculture production.

Aquaculture has seen a great deal of change since the inception of PD/A CRSP. The needs and priorities may have changed as a result. The primary purpose of the Asia Region Expert Panel Meeting is to identify constraints, then take it one step further and think about how those constraints can be framed as researchable priorities. PPEC will review researchable priorities for each region, combine them to get global priorities, and evaluate PD/A CRSP comparative advantages, duplications with other programs, and donor goals in coming up with the research framework for 2003–2008. The Request for Proposals will be written from the research framework.

Proposal Planning Executive Committee (PPEC) members were introduced (Jim Diana, Kevin Fitzsimmons, and Egna). Recorders and panel members gave introduced themselves.

Hillary Egna provided a brief background on CRSP to the Expert Panel Members. The following points were made:

- CRSP is a program centered on partnerships that carry out research with host country institutions and universities.

- Working on research problems involves not only the US institution principal investigators, but also the host country participants and students (from both sides).

- A primary goal is to build the capacity of developing institutions through students and research.

- CRSP research has focused on improving the livelihoods of small farmers and people without traditional access to a lot of resources in many countries. The CRSP has not focused on heavily industrialized and commercialized producers.

- Expert panel members were encouraged to think about the universe of problems and solutions; to look outside of the "pond." For example, contaminated water in the pond not only affects fish health but also human health from consumption of contaminated fish.

- The Latin America and the Caribbean Regional Expert Panel Meeting was held following a stakeholder meeting that took place in Honduras. However, a stakeholder meeting was not held for the Asia Region. Comprehensive reports of stakeholder meetings recently held in Asia (Aquaculture in the Third Millennium 2000- FAO- NACA in Bangkok and Fish for the People- SEAFDEC 2001 were made available to the expert panel members in advance of the Beijing expert panel meeting.

Egna concluded by stating that the expert panel was selected from a large number of experts. Egna thanked the participants for their attendance and expressed the importance of receiving input, advice, and assistance from panel members in looking at outputs and impacts of CRSP research. Panel members should use this opportunity to think of how the CRSP can change and respond to challenges now as well as over the course of the next 20 years. Their input will assist the CRSP in writing the grant proposal for 2003–2008.

Jim Diana and Kevin Fitzsimmons provided a brief introduction and description of why panel members were invited to attend the meeting. Meeting procedures would be the similar to those at the LAC expert panel meeting. Panel members were reminded that their involvement would provide a broadened perspective and will open up the process of identifying constraints to aquaculture and developing researchable priorities. Each panel member's involvement is critically important.

DEVELOP LIST OF CONSTRAINTS

Each panel member was given a note card and asked to write down five constraints to aquaculture development in the order of importance. They were instructed to incorporate stakeholder-expressed constraints, constraints brought out in literature, and their expert knowledge of constraints. Panel members were encouraged to consider broad issues. Diana asked panel members to take turns to read and explain the constraints from their note card. Fitzsimmons noted each constraint on flip chart pages.

PRIORITIZE LIST OF CONSTRAINTS

Each panel member was given 8 dots for use in identifying which constraints had the most importance or weight. The following is the list of identified constraints in the order in which panel members read from their notecards and then weighed its importance by affixing a dot.

LIST OF CONSTRAINTS TO THE DEVELOPMENT OF AQUACULTURE IN THE ASIA REGION		
NUMBER	**CONSTRAINT**	**WEIGHT (DOTS)**
1.	Insufficient Management-Environmental monitoring and disease control	3
2.	Shortage of water supply (quality and quantity)	5
3.	Insufficient knowledge and skills (among practitioners and institutions)	0
4.	Lack of quality (genetics) and quantity fish seed	2
5.	Lack of appropriate technology for rural communities	6
6.	Lack of technology package for small farmers and various species and environments	6
7.	Increase competition with other food production sectors	6
8.	Lack of focus on new species for aquaculture	3
9.	Low and uncertain price for the product (especially farm gate)	0
10.	Poor planning for aquaculture development at both local and national levels	0
11.	Ineffective technical applications and transfer to producers	0
12.	Inefficient use and management of natural resources (water and other inputs)	0
13.	Limited knowledge in indigenous species and promotion indigenous species for aquaculture	4
14.	Shortage of aquaculture inputs due to inefficient use of household resources	1
15.	Lack of information and promotion concerning the role of aquaculture in poverty alleviation and food security in LCDs	6
16.	Lack of attention to environmental impacts of aquaculture	5
17.	Insufficient knowledge, training and lack of attention to food safety	4
18.	Lack of market knowledge	2
19.	Insufficient knowledge of marketing and distribution mechanism	2
20.	Lack of effective extension systems (knowledge and extension training)	4
21.	Lack of information of impacts of cultured fish to native fish communities (native fishes and capture fisheries)	2
22.	Multiple use of ponds inhibits production enhancement	0
23.	Lack of knowledge by farmers on species selection and input	0

	availability	
24.	Lack of product line development (value added R & D)	0
25.	Inadequate promotion of integrating aquaculture into other production systems	4
26.	Limited access to financial resources for small farmers	1
27.	Lack of knowledge regarding renovation and upgrading of farms (engineering and concept)	4
28.	Lack of appropriate farm management (technical, infrastructure, financial resources, etc.)	0
29.	Inadequate knowledge and information and means to insure product quality	2
30.	Lack of emphasis on people choice on selection of aquaculture species	0
31.	Lack of knowledge regarding the use of local ingredients for feed inputs and preparation	0

Fourteen top constraints were identified as a result of the above constraints prioritization exercise. Working in small groups, the 14 constraints were fine-tuned and then listed on the flip charts. The group reviewed and edited the 14 constraints and added one more (#15) to this list for a total of 15 constraints. Then each panel member was given 8 dots for use in identifying which constraints had the most importance or weight. The following is the list of prioritized constraints in constraint language.

PRIORITIZED CONSTRAINTS IN CONSTRAINTS LANGUAGE		
NUMBER	**CONSTRAINT**	**WEIGHT**
1.	Lack of information and promotion concerning the role of aquaculture in food security and poverty alleviation ▪ Aspects of human nutrition and health (mal and under-nutrition) ▪ Job creation/employment opportunity (multiplier effect) ▪ Focus on poor people (access and opportunities)	Was #15
2.	Lack of appropriate technologies and technology packages for small farmers and rural communities ▪ Competition with captive fisheries ▪ Various species ▪ Various environment ▪ Various SE contexts ▪ Information on selection of existing technologies	Was #5, #6
3.	Lack of attention to poor management, insufficient assessment of environmental impact of aquaculture ▪ Effluent discharge ▪ Therapeutics in water ▪ Salinization (land and water) ▪ Introductions of exotic species ▪ Biodiversity ▪ Monitoring	Was #1, #16, #21

	▪ Information on water quality and availability of low cost methods to assess water quality ▪ Disease control	
4.	Lack of information, knowledge, and training concerning food safety of farmed aquatic products ▪ Antibiotic residues ▪ Contaminants ▪ Spoilage ▪ Processing ▪ QA/QC ▪ Human health information and outcomes ▪ Certification	Was #17
5.	Inadequate promotion of the integration of aquaculture into other production systems (agriculture, forestry industry and aquaculture) ▪ Polyculture ▪ Semi and intensive integration system ▪ Use of effluents (feeds, sediments) in other aquaculture	Was #25
6.	Increased competition for resources with other sectors (agriculture and non-agriculture) ▪ Feed inputs, water, land, energy ▪ Household inputs and resources	Was #7, #14
7.	Lack of effective extension systems ▪ Knowledge generation ▪ Training ▪ Poor coordination between researchers and extension ▪ Farmer to farmer extension systems ▪ Responsible parties and extension- organizational, institutional ▪ Willingness to pay – value of water	Was #20
8.	Lack of sufficient quantity of quality water for aquaculture ▪ Assessment ▪ Standards ▪ Water rights ▪ Optimal use of water in production systems ▪ Discharge controls ▪ Water reuse	Was #2
9.	Lack of information, knowledge and promotion of new aquaculture species and new products ▪ Product line development ▪ Value added ▪ Product diversification	Was #8
10.	Limited knowledge and promotion of indigenous species for	Was #13,

	aquaculture where appropriate ▪ Biodiversity and conservation ▪ Ornamentals ▪ Indigenous spp for specific socio-cultural niches ▪ Risk of relying on few species ▪ Farming systems (polyculture)	#30)
11.	Lack of information of knowledge on marketing and distribution ▪ Low/uncertain price at farm gate ▪ Product diversification ▪ Organic product ▪ Product quality ▪ Investment chain	Was #9, #18, #19, #29
12.	Lack of assistance for understanding of research priority setting by government and industry ▪ Methodology for setting time sensitive priorities ▪ Benefit/cost analysis ▪ Local and national planning process	New
13.	Lack of conceptual knowledge regarding construction, renovation and upgrading of farms	Was #27
14.	Lack of quality and quantity of seed ▪ Genetic improvement ▪ Broodstock management ▪ Hatchery/nursery technology ▪ Inbreeding depression ▪ Domestication (transfer reliance from wild seed) ▪ Seed transportation and distribution ▪ Seed quality criteria (assessment) ▪ Standardized grading and sorting	Was #4
15.	Limited access to financial resources for small farmers ▪ Credit ▪ Attracting investment	Was #26

DISCUSS RESEARCHABLE PRIORITIES ARISING FROM CONSTRAINTS AND DEVELOP LIST OF RESEARCHABLE PRIORITIES

The next group exercise involved identifying research topics for each of the 15 constraints. Panel members broke out into three groups. They were given 4 to 5 constraints to discuss and then list researchable topics on each constraint. Results were recorded on the flip chart pages and then displayed the page above the constraint. The group as a whole then reviewed/edited/added to the researchable topic lists.

RANK RESEARCHABLE PRIORITIES

Panel members were given 5 dots to mark which researchable priorities had the most importance or weight. Five minutes was allowed for this exercise. The following table contains the final list of researchable priorities.

RESEARCHABLE QUESTIONS		
NUMBER	**RESEARCHABLE PRIORITY**	**WEIGHT (DOTS)**
1.	Lack of information and promotion concerning the role of aquaculture in food security and poverty alleviation • Assess the role and use of aquaculture production in nutrition health and livelihoods of poor people, including vulnerable groups (women and children), • Identify and quantify the employment and social benefits of aquaculture and associated activities. • Prepare an inventory of aquaculture and poverty alleviation • Identify local research agendas that respond to needs of poor people and communities with potential for involvement in aquaculture. • Quantify the impacts of intensive aquaculture on effluent water quality and the aquatic environment and develop mitigating methods • Identify the positive and negative impacts of aquaculture on the quality of aquatic environment • Investigate impacts of commercial and industrial aquaculture on poverty alleviation	7 (Was #1 constraint)
2.	Lack of attention to poor management, insufficient assessment of environmental impact of aquaculture • Assessment of the role of introduced species on biodiversity and aquatic ecosystems • Identify and monitor fish and shrimp diseases in relation to aquaculture intensification and water quality • Assess the role of rural aquaculture on improvement of the environment in the community • Develop simple and low cost methods to monitor water quality in aquaculture	7 (Was #3 constraint)
3.	Lack of appropriate technologies and technology packages for small farmers and rural communities • Develop appropriate technology packages for small-scale aquaculture in different socio-economic settings and environments • Develop selection criteria for the formulation of appropriate small-scale aquaculture production	6 (Was #2 constraint)

	technology packages. • Investigate competition between aquaculture and capture fisheries within both inland and coastal communities. • Develop appropriate small-scale technology package for the major culture freshwater food fish species	
4.	Increased competition for resources with other sectors (agriculture and non-agriculture) • Analyze the efficiency of using on and off farm resources at the household level for different aqua and agriculture farming systems • Assess aquaculture compared to other natural resource and food producing industries for social, economic, and environmental costs and benefits. • Support research programs on farm diversification aquaculture • Evaluate and improve efficiency of natural resource use in aquaculture systems	5 (Was #6 constraint)
5.	Lack of information, knowledge, and training concerning food safety of farmed aquatic products • Evaluate sources and fates of antibiotic residues in aquaculture and effluent systems • Identify and determine impact of chemical contaminants in aquaculture systems for human consumption • Improve farm-based processing technology to value add at the farm level and to improve quality • Assess existing methods and develop appropriate technologies for small-scale aquaculture producers • Understand implications of certification systems for small-scale producers	5 (Was #4 constraint)
6.	Inadequate promotion of the integration of aquaculture into other production systems (agriculture, forestry industry and aquaculture) • Characterize existing aquaculture – agriculture farming systems within major aquaculture producing countries in Asian with a view to improving performance, resource use, and efficiency; • Develop new integrated FW, BW, and M polyculture production systems • Develop farm effluent treatment methodologies through integration with farm, forestry, and industry activities	4 (Was #5 constraint)
7.	Lack of sufficient quantity of quality water for aquaculture • Assess the quality of underground and rain water for	2 (Was #8

	development of aquaculture in countries/regions • Develop water quality standards for FW aquaculture of (certain species) in countries/regions • Characterize water use rights of the poor farmer and develop an effective arrangement to ensure their access to aquaculture option • Investigate the potential of FW and coastal aquaculture with minimum discharge or reuse of water	constraint)
8.	Limited knowledge and promotion of indigenous species for aquaculture where appropriate • Investigate the role of aquaculture in conservation and biodiversity of indigenous spp. • Feasibility studies on indigenous species for trade of ornamental species • Determine economic and social feasibility of the use of indigenous vs. exotic species in aquaculture	2 (Was #10 constraint)
9.	Lack of conceptual knowledge regarding construction, renovation and upgrading of farms • Identify cost-efficient methodologies for the renovation and rehabilitation of small- and large-scale aquaculture • Develop cost-effective methodologies for water re-use and conservation through improved pond design. • Conduct studies to determine design parameters for setting basins based on site characterization.	2 (Was # 13 constraint)
10.	Lack of effective extension systems • Develop improved extension methodologies applicable to small-scale farmers • Develop farmer-to-farmer extension demonstration programs • Develop practical technological packages for use by extension agents including improved site selection, pond construction, water use, fertilization and feed use, and farm operations • Develop improved linkages/methodologies/approaches among traditional agriculture and aquaculture/fisheries extension agents/researchers	2 (Was #7 constraint)
11.	Lack of quality and quantity of seed • Develop BMPs for broodstock management to ensure quantity and quality of seed • Improve nursery management techniques to ensure better survival and quality seed using local inputs • Develop seed quality assessment criteria and performance in different culture systems	2 (Was #14 constraint)

	• Assess the nature and extent of inbreeding depression and its impact on freshwater aquaculture	
12.	Lack of information, knowledge and promotion of new aquaculture species and new products • Identify potential new spp. for aquaculture by studying their biology, breeding and reproductive performance , and consumer preferences • Develop value-added products from the low-cost aquaculture spp. to ensure peoples' choice and economic return.	0 (Was #9 constraint)
13.	Lack of information of knowledge on marketing and distribution • Develop methodologies for investigating the fluctuation of the farm-gate price of major aquaculture spp in Asia • Determine market opportunities for production diversification including the production of organic aquaculture produce and post-harvest processing methods • Study quality of major aquaculture products within local markets, to include possible contaminants, flesh quality and microbial safety	0 (Was #11 constraint)
14.	Limited access to financial resources for small farmers • Investigate sources and ramification of credit and finances for small-scale aquaculture	0 (Was #15 constraint)
15.	Lack of assistance for understanding of research priority setting by government and industry • Develop methodologies for government planners, researchers, and farmers to set priorities • Evaluate existing government research programs in aquaculture using both economic and technical selection criteria	0 (Was #12 constraint)

CLOSING COMMENTS

In closing, Egna stated that this is the second expert panel meeting. She thanked expert panel members representing Asia and commended them on a job well done. The reorganization of priorities will be based upon the input from these series of expert panel meetings held in Asia, Africa, Latin America, and Eastern Europe. The Program Management Office (PMO) will send the final report from this to each expert panel member. Egna also announced that a Request for Proposals (RFP) for Work Plan 11 would be sent out in Fall 2002.

Meeting ended at 4:30 P.M.

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Tuesday, 23 April 2002

8:00 AM	**REGISTRATION**
8:00 ~ 8:30 AM	**OPENING COMMENTS** Moderators ~ Hillary Egna and Jim Diana • Preamble • Introductions • Ground Rules
8:30 ~ 10:00 AM	**DEVELOP LIST OF CONSTRAINTS** Incorporate stakeholder constraints, constraints brought out in literature, and expert knowledge of constraints
10:00 ~ 10:30 AM	**PRIORITIZE LIST OF CONSTRAINTS**
10:30 ~ 10:50 AM	**COFFEE BREAK**
10:50 ~ 12:00 PM	**DISCUSS RESEARCHABLE PRIORITIES ARISING FROM CONSTRAINTS**
12:00 ~1:00 PM	**WORKING LUNCH ~ LUNCH WILL BE PROVIDED**
1:00 ~ 2:00 PM	**ENTIRE GROUP DISCUSSES AND DEVELOPS LIST OF RESEARCHABLE PRIORITIES**
2:00 ~ 3:00 PM	**RANK RESEARCHABLE PRIORITIES**
3:00 ~ 3:30 PM	**CLOSING COMMENTS** Moderators ~ Hillary Egna and Jim Diana

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23 APRIL 2002

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